299-E33-81 (A6889)

Log Data Report

Borehole Information:

Borehole:	299-E33-81 (A6889)		Site:	216-B-8 Crib	
Coordinates (Plant)		GWL (ft)[1]:	Not Applicable	GWL Date:	
North	East	Drill Date	TOC[2] Elevation	Total Depth (ft)	Type
573823	137524	11/48	628.0 ft	15	

Casing Information:

Casing Type	Stickup (ft)	Outer Diameter (in.)	Inside Diameter (in.)	Thickness (in.)	Top (ft)	Bottom (ft)
Welded Steel	1.2	8 5/8	8	5/16	1.2	Unknown

Borehole Notes:

The logging engineer measured the pipe stickup at the borehole using a steel tape. Calipers were used to measure casing OD and thickness only; the casing ID is calculated. Stickup was measured between survey points marked on the casing. Zero reference is the top of casing.

Logging Equipment Information:

Logging System:	Gamma 2B		Type: SGLS HPGe (35%)
Calibration Date:	09/00	Calibration Reference:	GJO-2001-245-TAR
		Logging Procedure:	MAC-HGLP 1.6.5

Spectral Gamma Logging System (SGLS) Log Run Information:

Log Run	1	2	3	4	5	6
Date	9/10/01					
Logging Engineer	Spatz					
Start Depth (ft)	1.5					
Finish Depth (ft)	12.0					
Count Time (sec)	100					
Live/Real	R					
Shield (Y/N)	N/A[3]					
MSA Interval (ft)	0.5					
ft/min	N/A					
Pre-Verification	B0046CAB					
Start File	B0046000					
Finish File	B0046021					
Post-Verification	B0048CAA					
Depth Return Error	0					
Comments						

Logging Operation Notes:

Zero reference is the top of casing. No fine-gain adjustments were made while logging this borehole. Precalibration file B0046CAB passed verification criteria. Log run began at 1.5 ft, file B0046000; log run ended at 12.0 ft, file B0046021. At 12.25 ft, the sonde touched the bottom of the borehole, and logging was terminated.

Analysis Notes:

Analyst:	Sobczyk	**Date:**	09/13/01	**Reference:**	MAC-VZCP 1.7.9 Rev. 2

Pre-run and post-run verification spectra for the SGLS were evaluated. The pre-survey verification spectrum was within the warning limits. The post-survey verification (file B0048CAA) was outside of the control limits. The photopeak counts per second for the 1461-keV peak and the 609-keV peak were below the lower control limits for this post-run verification spectrum. Examinations of spectra indicate that the detector appears to have functioned normally during the log run, and the spectra are provisionally accepted.

Individual spectra were processed in batch mode using APTEC Supervisor. Concentrations were calculated in EXCEL, using parameters determined from analysis of calibration data collected in August 2000. The casing configuration was assumed to be one string of 8-in. casing with a thickness of 5/16 in. These assumptions are consistent with the logging engineer's measurements. Zero reference is the top of the casing. Water and dead time corrections were not needed.

Log Plot Notes:

Separate log plots are provided for gross gamma and dead time, naturally occurring radionuclides (^{40}K, ^{238}U, and ^{232}Th), and ^{137}Cs. For each radionuclide, the energy value of the spectral peak used for quantification is indicated. Unless otherwise noted, all radionuclides are plotted in picocuries per gram (pCi/g). The open circles indicate the minimum detectable activity (MDA) for each radionuclide. Error bars on each plot represent error associated with counting statistics only and do not include errors associated with the inverse efficiency function, dead time correction, or casing correction. These errors are discussed in the calibration report. A combination plot is also included to facilitate correlation.

Results and Interpretations:

^{137}Cs, which is a man-made radionuclide, was detected in this borehole. At ground surface (log depth 1.5 ft), ^{137}Cs was observed with an activity of 0.7 pCi/g. ^{137}Cs was observed at 11.5 and 12.0 ft with activities of 0.3 and 0.8 pCi/g, respectively.

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[1] GWL – groundwater level
[2] TOC – top of casing
[3] N/A – not applicable

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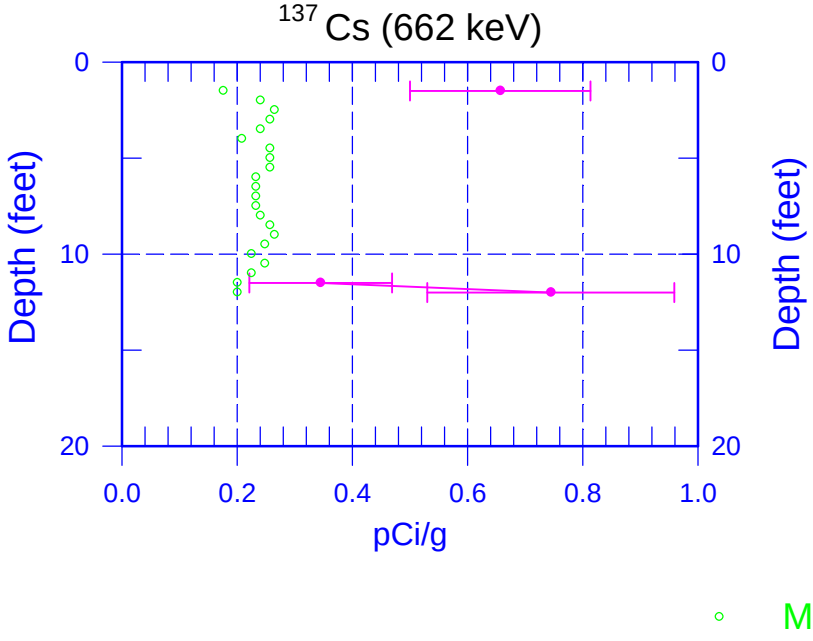
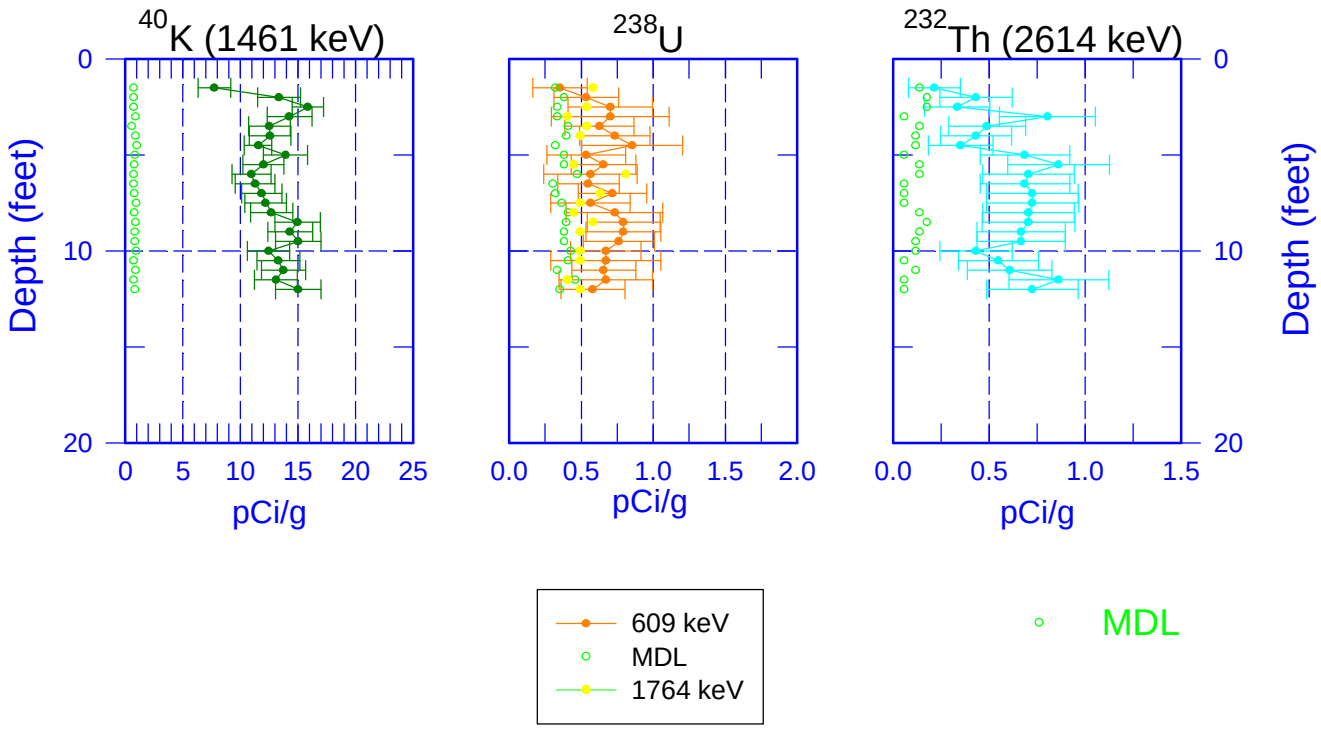
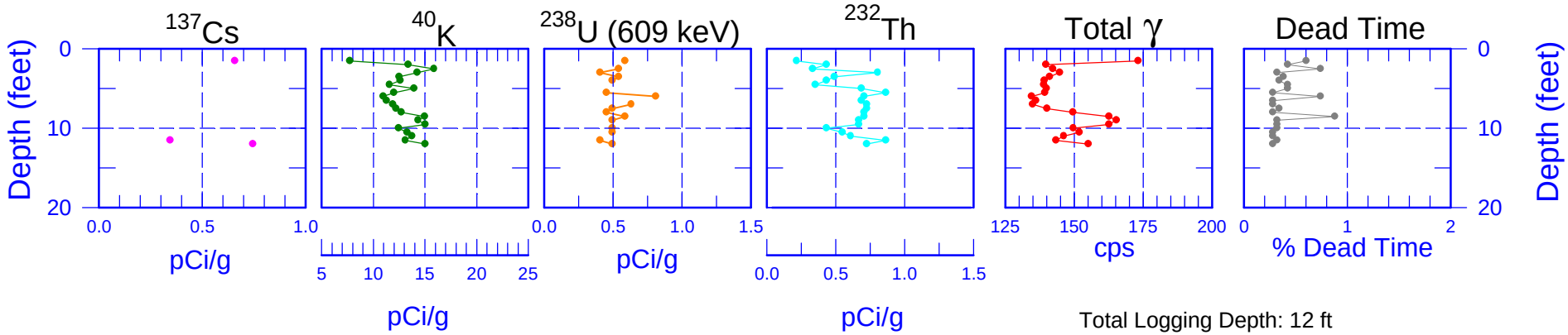
Man-Made Radionuclide Concentrations



299-E33-81 (A6889)
Natural Gamma Logs



299-E33-81 (A6889)
Combination Plot



Total Logging Depth: 12 ft

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Total Gamma & Dead Time